



# RSVCH-R

## Air quality room transmitter

RSVCH-R are multifunctional room transmitters which measure temperature, relative humidity and a broad range of total volatile organic compounds (TVOCs). The TVOC concentration is an accurate indicator for indoor air quality. Based on the temperature and relative humidity measurements, the dew-point temperature is calculated. They feature 24 VDC power supply and 3 analogue / modulating outputs - one for temperature, one for relative humidity and one for TVOC. All the parameters and measurements are accessible via Modbus RTU.

### Key features

- Spring contact terminal block or RJ45 connections
- Selectable temperature, relative humidity and TVOC ranges
- Silicon based sensor elements for TVOC measurements
- Bootloader for updating the firmware via Modbus RTU communication
- Day / Night detection via ambient light sensor
- Ambient light sensor with adjustable 'active' and 'standby' level
- Modbus RTU (RS485)
- Replaceable TVOC sensor module
- 3 LEDs with adjustable light intensity for status indication
- Long-term stability and accuracy

### Area of use

- Measurement of indoor temperature, relative humidity and TVOC
- Monitoring of indoor air quality
- Suitable for residential and commercial buildings
- For indoor use only

### Technical specifications

Analogue / modulating outputs	0—10 VDC mode: $R_L \geq 50 \text{ k}\Omega$	
	0—20 mA mode: $R_L \leq 500 \text{ }\Omega$	
	PWM (open-collector type) mode: 1 kHz, $R_L \geq 50 \text{ k}\Omega$ , PWM voltage level: 3,3 VDC or 12 VDC	
Warm-up time	15 minutes	
Typical field of use	Temperature range	0—50 °C
	Relative humidity range	0—95% rH (non-condensing)
	TVOC range	0—60.000 ppb
Accuracy	$\pm 0,4 \text{ }^\circ\text{C}$ (range 0—50 °C)	
	$\pm 3\%$ rH (range 0—95 %)	
	$\pm 15 \%$ TVOC (range 0—60.000 ppb)	
Protection standard	IP30 (according to EN 60529)	

### Article codes

	Supply voltage	I <sub>max</sub>	Connection type
<b>RSVCH-R</b>	24 VDC	115 mA	RJ45 or terminal block

### Modbus registers



The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

The parameters of the unit can be monitored / configured through the 3SMODBUS software platform. You can download it from the following link: <https://www.sentera.eu/en/3SMCenter>

For more information about the Modbus registers, please refer to the product Modbus Register Map.



### Wiring diagram

#### RJ45 socket (Power over Modbus)<sup>(1)</sup>

Pin 1	24 VDC	Supply voltage
Pin 2		
Pin 3	A	Modbus RTU communication, signal A
Pin 4		
Pin 5	/B	Modbus RTU communication, signal /B
Pin 6		
Pin 7	GND	Ground, supply voltage
Pin 8		



#### Terminal Block 1<sup>(1)</sup>

VIN	Supply voltage 24 VDC
GND	Supply voltage, ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B

#### Terminal Block 2

AO1	Analogue / modulating output 1 for temperature measurement (0—10 VDC / 0—20 mA / PWM)
GND	Ground AO1
AO2	Analogue / modulating output 2 for relative humidity measurement (0—10 VDC / 0—20 mA / PWM)
GND	Ground AO2
AO3	Analogue / modulating output 3 for TVOC measurement (0—10 VDC / 0—20 mA / PWM)
GND	Ground AO3

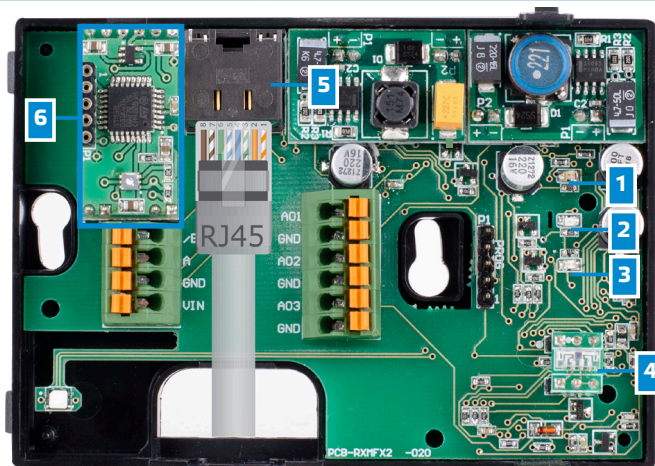
<sup>(1)</sup> **Attention!** The unit needs to be supplied via the RJ45 connector or via the connection terminals. Do not connect the device via the RJ45 connector and the terminal block simultaneously!



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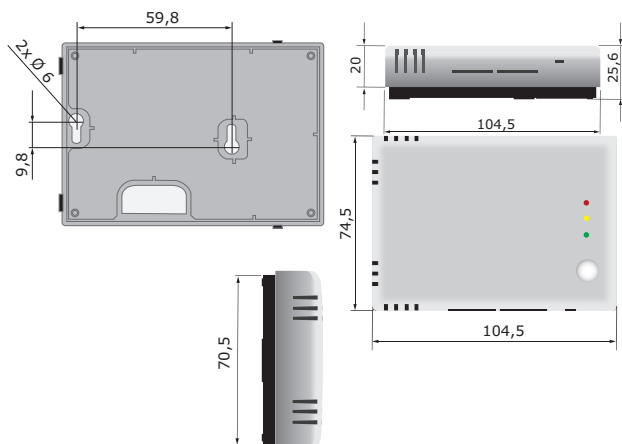


## Settings and indications

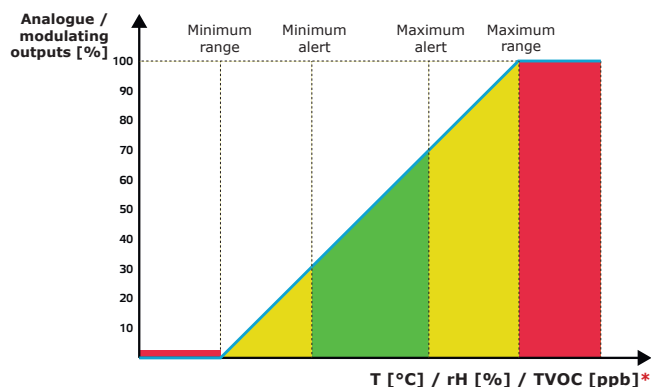


1 - Red LED	<b>Continuous</b>	Measured temperature, relative humidity or TVOC are out of range
	<b>Blinking</b>	Communication with one of the sensors fails
2 - Yellow LED	<b>On</b>	Measured temperature, relative humidity or TVOC are in the alert range
	<b>On</b>	Measured temperature, relative humidity or TVOC are within range
3 - Green LED	<b>On</b>	Measured temperature, relative humidity or TVOC are within range
	<b>Blinking</b>	Sensor warming up
4 - Ambient light sensor		Low light intensity / Active / Standby
5 - RJ45 socket		Modbus communication with connected Master devices and PoM voltage supply (24 VDC)
		Blinking LEDs indicate that packages are transmitted via Modbus RTU communication
6 - TVOC sensor element		Replaceable in case of faulty operation

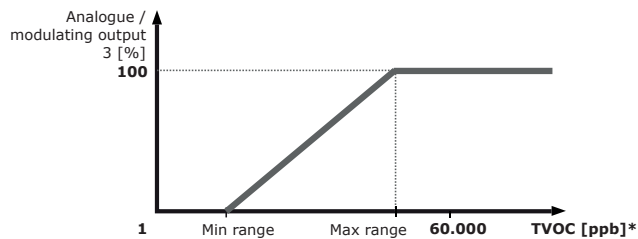
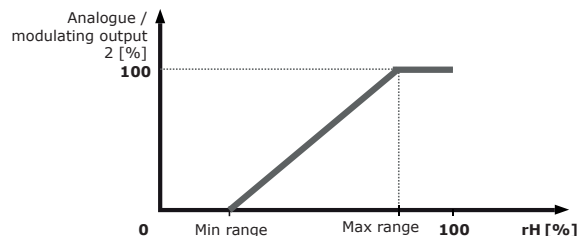
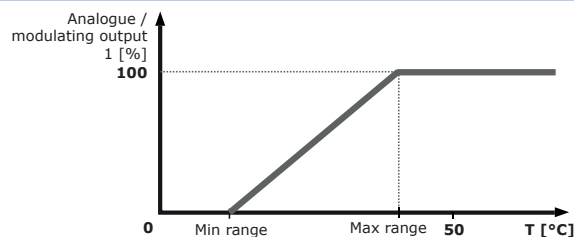
## Fixing and dimensions



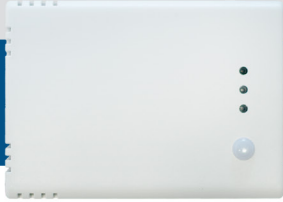
## Operational diagrams



\* LED indications - TVOC (default), T or rH




\*TVOC measurements will return 0 ppb during warm-up time.



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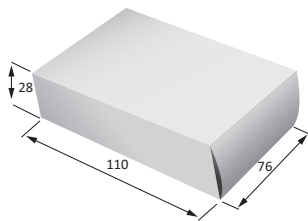
## Standards

- Low Voltage Directive 2014/35/EC 
  - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
- EMC directive 2014/30/EU:
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
  - EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments. Amendments A1:2011 and AC:2012 to EN 61000-6-3
  - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
  - EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements. Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
- WEEE 2012/19/EC
- RoHS Directive 2011/65/EC

## Global trade item numbers (GTIN)

Packaging	RSVCH-R
<b>Unit</b>	05401003011461
<b>Carton</b>	05401003301906
<b>Box</b>	05401003502723

## Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
RSVCH-R	Unit (1 pc.)	110	76	28	0,089 kg	0,111 kg
	Carton (24 pcs.)	492	182	84	2,14 kg	2,804 kg
	Box (144 pcs.)	510	410	270	12,81 kg	18,066 kg